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Patrick W. Bixenman

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EXAMINER

TSAY, FRANK

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/710,833  
Filing Date: August 05, 2004  
Appellant(s): BIXENMAN ET AL.

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Frank Tsay  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 11/05/2007 appealing from the Office action mailed 04/09/2007.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

No amendment after final has been filed.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

US 6,148,925 (Moore);  
US 4,095,865 (Denison et al), and  
US 5,954,136 (McHugh et al.)

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 4, 5, 8, 9, 14, and 25-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Moore (US 6,148,925).

*Regarding claims 1, 2, 32:* Moore discloses a conduit for suspending a tool within a wellbore. The conduit includes the following features:

- A length of conduit **34**.
- A cable **36** inserted into the conduit where the cable has buckles that directly contact the interior surface of the conduit at a plurality of locations along the length of the conduit to prevent longitudinal movement of the cable within the conduit (3:62-4:8), where the cable is uniformly supported along the length of the conduit. *The cable maintains a helical shape within the conduit and is in frictional engagement with the inner walls of the conduit thus is uniformly supported along the length of the conduit as defined in the instant specification in paragraph 28.*

- The language "wherein the cable is uniformly supported along the length of the conduit" is anticipated by the conductor 36 maintains helical shape inside the tubing 34 due to its own **inherent memory**, which implies to its original uniformity of the helical shape after tension on the cable is released (col. 3, line 62-col. 4, line 17).

*Regarding claim 4:* The conduit is coiled tubing.

*Regarding claim 5:* The cable is an electrical power cable.

*Regarding claim 8:* The compressive force on the cable is less than a total weight of the cable.

*Regarding claims 9, 28, 29:* The cable buckles form a uniform helix within the length of the conduit.

*Regarding claims 14, 27:* Moore further discloses a method for installing the cable within the conduit prior to deployment into a well that involves inserting a first length of cable into the length of the conduit and inserting a second length of cable into the conduit to form buckles that are uniformly supported along the length of the conduit via contact at a plurality of locations. (The examiner notes that a second length of cable is not specifically disclosed but is considered to be inherent because cable does not come in infinite lengths and thus a second length of cable may be required to complete the length of the conduit.)

*Regarding claim 25:* Moore further discloses a method for fabricating a length of conduit that involves installing the cable during the fabrication. The method involves rolling a strip of metal to create a length of tubular material, inserting the cable into the tubular material so that it buckles therein, controlling the positioning of the plurality of locations to provide uniform support of the length of cable along the tubular material when the tubular material is placed in a generally vertical orientation, and sealing the tubular material to create a conduit with a buckled cable disposed therein (3:62-4:8, 4:40-54). *The positioning of the plurality of locations is controlled in that the cable will have an inherent helical shape thus one would know the spacing of the contact locations.*

*Regarding claim 26:* The tubular member is sealed by welding or annealing.

*Regarding claim 30:* The difference between the length of the cable and the length of the cable is about 05 feet of cable per 1000 feet of conduit.

*Regarding claim 31:* The cable is remains evenly distributed within the conduit when installed.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moore in view of Denison et al. (US 4,095,865).

Moore discloses all of the limitations of the above claim(s) except for the conduit being jointed tubing.

Denison et al. disclose a wellbore tubular that is jointed tubing with an electrical power cable disposed therein. The cable is buckled along the length of the tubing and touches the interior surface thereof.

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified the conduit of Moore to be jointed tubing as taught by Denison et al. in order to have been able to use the conduit as a drill string or for other purposes for which coiled tubing is not optimal.

5. Claims 6, 7, 10, 12, 13, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moore in view of McHugh et al. (US 5,954,136).

*Regarding claims 6, 7, 10, 15, 16:* Moore discloses all of the limitations of the above claim(s) except for operatively connecting one end of the conduit to an electric submersible pumping system.

McHugh et al. discloses a tubing system similar to that of Moore. McHugh et al. further discloses using the conduit to suspend and power an ESP within a wellbore.

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have used the conduit of Moore to suspend and power an ESP within a wellbore as taught by McHugh et al. in order to have used a power conduit where the electrical power cable was not subject to the stress of the weight of the pumping system.

*Regarding claim 12:* The conduit is coiled tubing.

*Regarding claim 13:* The cable can be disposed within the conduit at the surface.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moore in view of McHugh et al. as applied to claim 10 above, and further in view of Denison et al.

Moore and McHugh et al. disclose all of the limitations of the above claim(s) except for the conduit being jointed tubing.

Denison et al. disclose a wellbore tubular that is jointed tubing with an electrical power cable disposed therein. The cable is buckled along the length of the tubing and touches the interior surface thereof.

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified the conduit of Moore in view of McHugh et al. to be jointed tubing as taught by Denison et al. in order to have been able to use the conduit as a drill string or for other purposes for which coiled tubing is not optimal.

**(10) Response to Argument**

7. Applicant's arguments filed February 15<sup>th</sup>, 2007 have been fully considered but they are not persuasive.

Applicant argued that the buckling in Moore cannot be uniform because Moore discloses a conventional system for feeding a cable into a conduit already located in the wellbore by gravity fed approach resulting in cable being under tension in the upper portion, the cable buckling may be generally loose and in the mid-portion of the conduit the cable may not buckle at all. Applicant further concluded that this conventional approach does not produce a uniform buckling along the length the assembly.

The examiner first notes that the portion of Moore to which applicant is referring, column 4, lines 65 through column 5, line 9 is not the portion of the reference on which the rejection was based. The section of Moore, column 3, line 62-column 4, line 54 clearly says that the wire line is feed into the well where the wire line is formed of coiled tubing **34** and a conductor **36** thus indicating that the conductor or cable was placed in the tubing prior to being inserted into the wellbore.

Secondly, column 3, line 62-column 4, line 8 clearly indicates that the conductor is held in its helical shape by a frictional engagement with the inner wall of the tubing and applicant has defined uniform support as the buckles being frictionally held in contact with the tubing. Applicant has further defined buckles or buckling as choosing a cable that is sized so that it will purposefully form a helical shape thus making "a plurality of uniform points of contact with the interior surface of the conduit with sufficient...frictional forces to prevent downward longitudinal movement of the cable within the conduit" (paragraph [0028]). As this is exactly how the cable of Moore is described it is unclear as to how the cable of Moore is not uniformly supported along the length of the cable.

Applicant has further argued that Moore does not teach method of installing cable within a conduit as recited in claim 25. The examiner disagrees



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and notes that column 4, lines 40-54 and Figures 3 and 4 clearly teach this method.

In conclusion, and to the best of examiner's understanding, applicant's arguments appear to hinge mainly on the assumptions that since Moore's conductor or cable was inserted into a length of conduit or coiled tubing under tension by gravity fed approach, it would have been impossible to produce a uniform buckling along the length of the assembly. In this regard, applicant is advised that, Moore's conduit is formed of a small coiled tubing ranging from 1/8" to 1/2" in diameter, the conductor 36 which is unwound from a reel 100 under carefully controlled tension far below its break strength or fatigue stress to maintain its inherent helical shape memory, it would be reasonable to conclude that after the conductor 36 is completely inserted into the tubing and the wire-in-tube is rewound into reel, the helical buckles in the conductor would have produced uniform contacts along the internal surface of the coiled tubing, since the gravitational tension is no longer exist, and the gaps between the conductor and the internal surface of the tubing is small.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Frank S Tsay/

Primary Examiner, Art Unit 3676

Conferees:

Gay, Jennifer /JHG/

Petravick, Meredith /mcp/

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